publications engineering

SERVICE BULLETIN

COLLINS RADIO COMPANY

Cedar Rapids, Iowa 52406

January 3, 1961

REVISION TO

KWM SERVICE BULLETIN NO. 5

Attached is a revision to KWM Service Bulletin No. 5, dated 11-23-60. The revision consists of changing the fourth paragraph on page 1 to allow for the fact that driver tube V8 as two screen grid terminals, pins 3 and 8. Thus transceivers wired so that V8 conducts while in receive function may show the 22K-ohm resistance between either pin 3 and pin 6 or pin 8 and pin 6, depending on which screen grid terminal is used.

Replace pages 1 and 2 of the referenced bulletin with the attached sheet.

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EQUIPMENT SERIES: KWM BULLETIN NO. 5 DATE: 11-23-60
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(Revised 1-3-61)

EQUIPMENT TYPE: TRANSCEIVERS KWM-2, KWM-2A

SUBJECT: TO IMPROVE TRANSMIT-RECEIVE EXCITER TUNING COINCIDENCE

Better transmit-receive exciter tuning coincidence can be obtained by the modification described in this bulletin.

As the PA driver tube V8 is switched from transmit (conducting) to receive (nonconducting), tube capacitance changes approximately 4 uuf. This change is reflected in the plate circuit of r-f amplifier tube V7 and results in noncoincidence of transmit-receive exciter tuning on the high frequency bands.

Using the effect of capacitance change proportional to back bias voltage applied to a silicon capacitor, it is possible to add 4 uuf of capacitance to the plate circuit when the driver is in receive (nonconducting) function.

Before adding the capacitor make the following check to determine if unit was wired so that tube V8 conducts when operating in receive. Units wired in this manner must be modified according to section A before adding the silicon capacitor.

1. With transceiver turned off, raise top lid and remove PA shield cover.

2. Remove driver tube V8 and measure the resistance from pins 3 and 8 to pin 6 of tube socket XV8. If either resistance is approximately 22K ohms proceed with section A. If both resistances are quite high (above 60K ohms) proceed with section B.

To identify and locate components referred to in this service bulletin, refer to drawings supplied with Amateur Service Information Letter dated 11-15-60.

The modification and tuning procedure in this bulletin will permit peaking of the EXCITER TUNE for maximum PA grid current in transmit function and will not require repeaking for receive. This will not degrade receive operation.

MODIFICATION PROCEDURE:

Section A: Removal of B+ from the Screen Grid of Tube V8 and Application of Bias to Control Grid of V8, When in Receive Function.

1. Remove the four feet from bottom of transceiver.

2. Open lid and remove the two unpainted screws in the top front panel rim. Slide unit out of cabinet.

3 Turn unit bottom up, with front panel toward operator.

4. Disconnect 22K-ohm 2-watt resistor R105 from junction of 100-ohm, 1.2-watt resistor R104 and 1000-uuf feedthrough capacitor C5 in PA grid compartment shield and reconnect to 1000-uuf feedthrough capacitor C82 in PA shield.

5. Remove bus wire located between tie points "D" and "G" on parts mounting turret E80.

6. From tie point "D" on this same parts mounting turret, transfer choke L11 to the adjacent clockwise tie point "E".

7. Proceed with Section B.

Section B: Installation of Silicon Capacitor

1. Connect new 10-uuf capacitor C272 (912-2753-00) from terminal "I" at the chassis end of parts mounting turret E80 to point "D" on the same mounting turret. Do not solder "D" connection.

2. Connect new 680K-ohm resistor R184 (745-0851-00) from tube socket XV17, pin 9 to tie point "D" on parts mounting turret E80. Do not solder "D" connection.

3. Observe polarity of silicon capacitor CR5 (922-6002-00). Connect anode (end marked with manufacturers' trade mark) to the ground shield of tube socket XV7. Connect cathode (color coded end) to tie point "D" on parts mounting turret E80. Do not solder "D" connection.

4. Connect new 1 meg-ohm resistor R183 (745-0857-00) from tie point "B" on parts mounting turret E70 to tie point "D" on parts mounting turret E80.

5. Solder connections to tie point "D".

6. Place chassis in upright position, and connect power cables and antenna load.

7. Check alignment in accordance with the following procedure. Some realignment of r-f trimmers, especially on the higher frequency bands, will be necessary. NOTE: This is not a standard alignment procedure. Refer to KWM-2 and KWM-2A Instruction Books for complete procedure.

   a. Set MIC GAIN control fully counterclockwise.

   b. Turn function switch to ON.

   c. Set main tuning dial to 100.

   d. Set EMISSION switch to TUNE.

e. Set EXCITER TUNE to 2.1 on the logging scale.

f. Set BAND switch to 3.6.

g. Set METER switch to PLATE position.

h. Turn PA TUNING control to white portion of dial, indicating the proper band.

i. Advance MIC GAIN to full clockwise position, and rock EXCITER TUNING control until maximum plate current is obtained.

j. Dip plate current immediately with the PA TUNING control.

k. Return MIC GAIN control to full counterclockwise position.

l. Set meter switch to GRID position.

m. Advance MIC GAIN control until some grid current indication is obtained.

n. Rock EXCITER TUNING control to a peak grid current indication.

NOTE: In the following steps reduce the setting of the MIC GAIN control as necessary to keep grid current below "S6".

o. Adjust trimmer capacitor marked 3.8 (C109 in r-f amplifier section) for peak grid current indication.

p. Repeat steps n and o until a peak indication is reached.

q. Return MIC GAIN to full counterclockwise position.

r. Repeat steps g through q for each of the remaining bands using the following table for selection of EXCITER TUNING, BAND switch position, and identification of r-f amplifier trimmer capacitance.

EXCITER TUNING LOGGING SCALE	BAND SWITCH	R-F AMPLIFIER STAGE	CAPACITOR
2.1	3.6	3.8	C109
3.5	7.0	7.0	C113
6.1	14.0	14.0	C115
7.6	21.2	21.0	C116
9.0	28A	28.0	C111

s. Turn off transceiver, remove cable, and return chassis to cabinet. Install the two screws in the front rim and replace feet.

PARTS REQUIRED: Modification Kit 547-1543-00 which consists of the following items:

QTY	DESCRIPTION	COLLINS PART NUMBER
1	Capacitor, 10 uuf ±5%, 500 wvdc, fixed mica	912-2753-00
1	Resistor, 1 megohm ±10%, 1/4 watt, fixed composition	745-0857-00
1	Resistor, 680K-ohm ±10%, 1/4 watt, fixed composition	745-0851-00
1	Capacitor, Silicon 6-88 uuf, 130 wvdc	922-6002-00

For modification parts, price quotations (minimum order charge is $15.00), and availability contact Collins Radio Company, Service Parts Department, Cedar Rapids, Iowa 52406. All parts orders must specify the Collins modification kit number, or part numbers, quantity required, and reference this service bulletin.

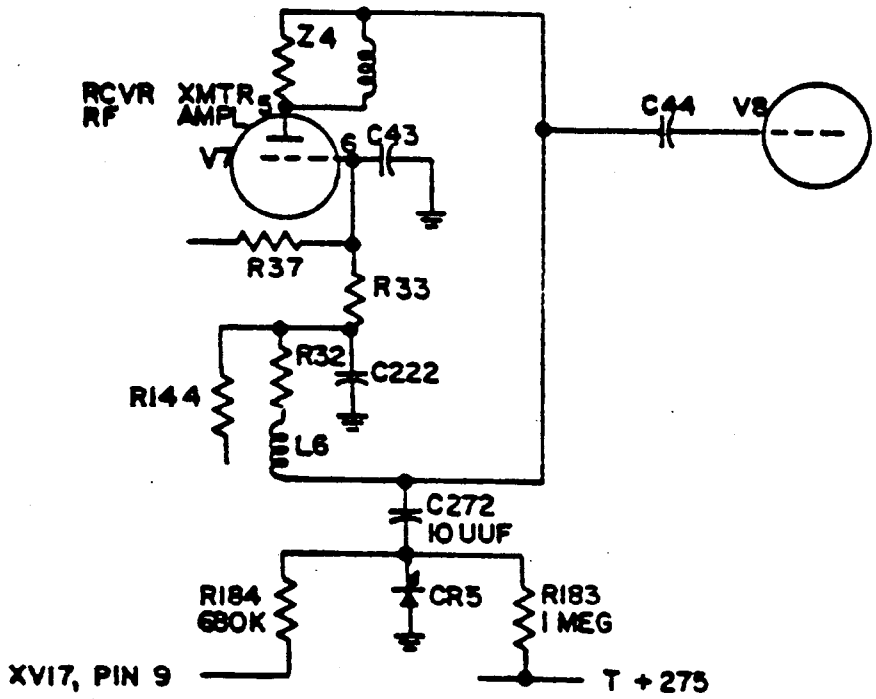

Figure 1. Schematic Diagram, After Modification